



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/524,755

09/07/2005

Qi Zhao

9013-68

6905

20792 7590 01/07/2010
MYERS BIGEL SIBLEY & SAJOVEC
PO BOX 37428
RALEIGH, NC 27627

EXAMINER

CHEN, VIVIAN

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

01/07/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/524,755	Applicant(s) ZHAO ET AL.	
	Examiner Vivian Chen	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 September 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27, 29 and 32 is/are pending in the application.
- 4a) Of the above claim(s) 8-12 and 20-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 13-19, 24-27, 29 and 32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1794

DETAILED ACTION

1. Claims 28, 30-31 have been cancelled by Applicant.

Information Disclosure Statement

2. If Applicant intends to rely upon the articles presented as exhibits in Applicant's arguments filed 9/18/2009 as evidence to overcome the outstanding rejections under 35 U.S.C. 112, first paragraph, the documents should be clearly entered on the record (i.e., via an Information Disclosure Statement).

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-7, 13-19, 24-27, 29 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims. The disclosure as originally filed is directed to very limited types of modified surfaces and devices (i.e., medical devices and/or surfaces), very limited types of environments (i.e., liquids, blood, biological and/or medical), very limited types of particles (i.e., biological compounds and/or microorganisms), and very limited means of modifying a surface to

Art Unit: 1794

achieve the recited matching of LW surface free energy (i.e., three specific coatings as set forth in claim 7) within a limited range of LW surface free energy values. Furthermore, the disclosure as originally filed fails to enable one of ordinary skill in the art to adjust the LW surface free energy of various surfaces as to achieve the required match with the LW surface free energy of various particles for systems other than those modified surfaces, environments, particles, and modifying means, and ranges of LW surface free energy values disclosed in the disclosure as originally filed. For example, many of the present claims encompass metallic particles and a surface in an oil refining apparatus or petroleum column, but the disclosure as originally filed fails to provide any information related to such particles, surfaces, environments, or the means of determining and matching the LW surface free energy of these components. Therefore, the disclosure as originally filed fails to enable one of ordinary skill in the art to make or use the invention as presently claimed.

Response to Arguments

5. Applicant's arguments filed 9/18/2009 have been fully considered but they are not persuasive.

(A) Applicant argues that one of ordinary skill in the art at the time of invention was made would understand how to calculate the LW free surface energy of a particular surface and/or particle particles. Applicant further argues that one of ordinary skill in the art would have been capable of modifying the LW free surface energy of a surface to render it equal to or approximately equal to the LW free surface energy of particles in an environment surrounding that surface. However, while the Applicant has presented limited evidence that one of ordinary

Art Unit: 1794

skill in the art would be able to calculate the free surface energy of various particles in a liquid environment, Applicant has not provide evidence that with respect to the ability of one of ordinary skill in the art to calculate free surface energy values for particles in other types of environments (e.g., solid or gaseous environment) which is encompassed by the present claims. Furthermore, even assuming that one of ordinary skill in the art is capable of calculating the LW free surface energy of particles in certain environments, the only evidence presented by Applicant as to the ability of one of ordinary skill in the art to adjust the LW free surface energy of a surface is directed to a specific type of modifying means (i.e., diamond-like carbon) and for LW surface free energy values within a limited range (i.e., approximately 23 to 46 mN/m). Applicant has not provide any probative evidence with respect to the ability of one of ordinary skill in the art to modify other types of coatings besides DLC or to achieve DLC surfaces with LW free surface energy values less than or greater than the range of values depicted in Figure 1.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

Art Unit: 1794

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vivian Chen whose telephone number is (571) 272-1506. The examiner can normally be reached on Monday through Thursday from 8:30 AM to 6 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho, can be reached on (571) 272-1123. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

The General Information telephone number for Technology Center 1700 is (571) 272-1700.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

January 2, 2010

/Vivian Chen/

Primary Examiner, Art Unit 1794